

# **TOPIC OF THE FUTURE CROSS BORDER TECHNICAL COOPERATION**

**Cross-border Collaboration on Geology  
and Mineral Resources of Cambodia-  
Lao PDR-Myanmar-Thailand-Vietnam**

# 1. Geology and Database system



Providing geoscience data globally

# Geology

Catalogues ▾ | Vocabularies | Help | About  

Catalogue of Registered Services pending on scale and location

Metadata Catalogue

GEOSS Discovery and Access Broker

OneGeology Portal



Bay of Bengal

South China Sea

400 km

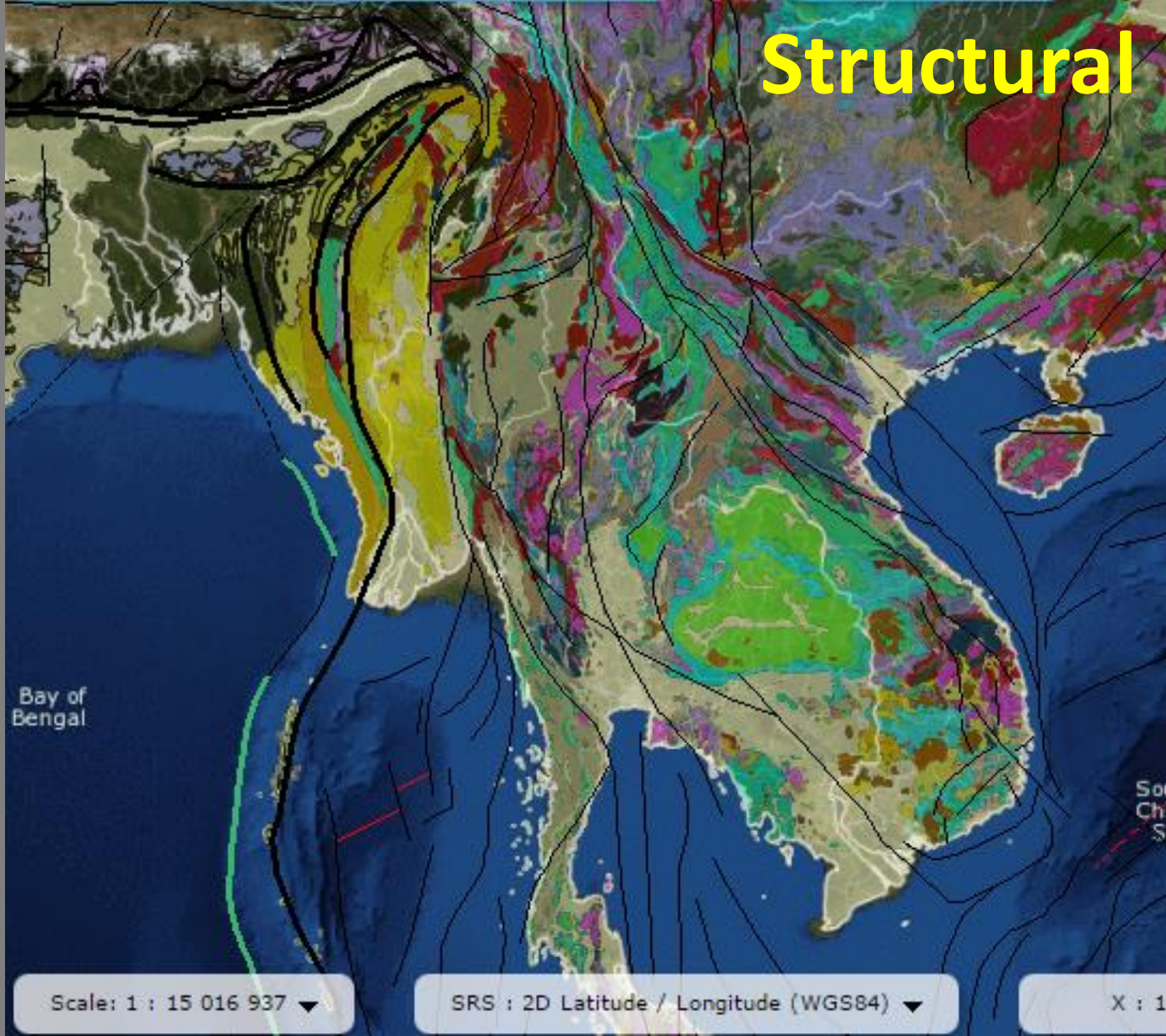
Scale: 1 : 11 262 703

SRS : 2D Latitude / Longitude (WGS84)

X : 114.37

Y : 16.20

# Structural



Bay of Bengal

South China Sea

Scale: 1 : 15 016 937

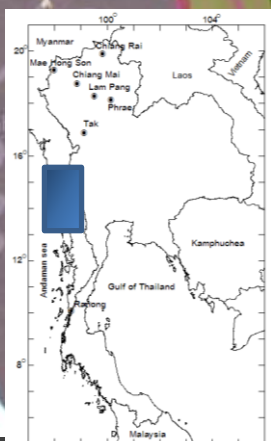
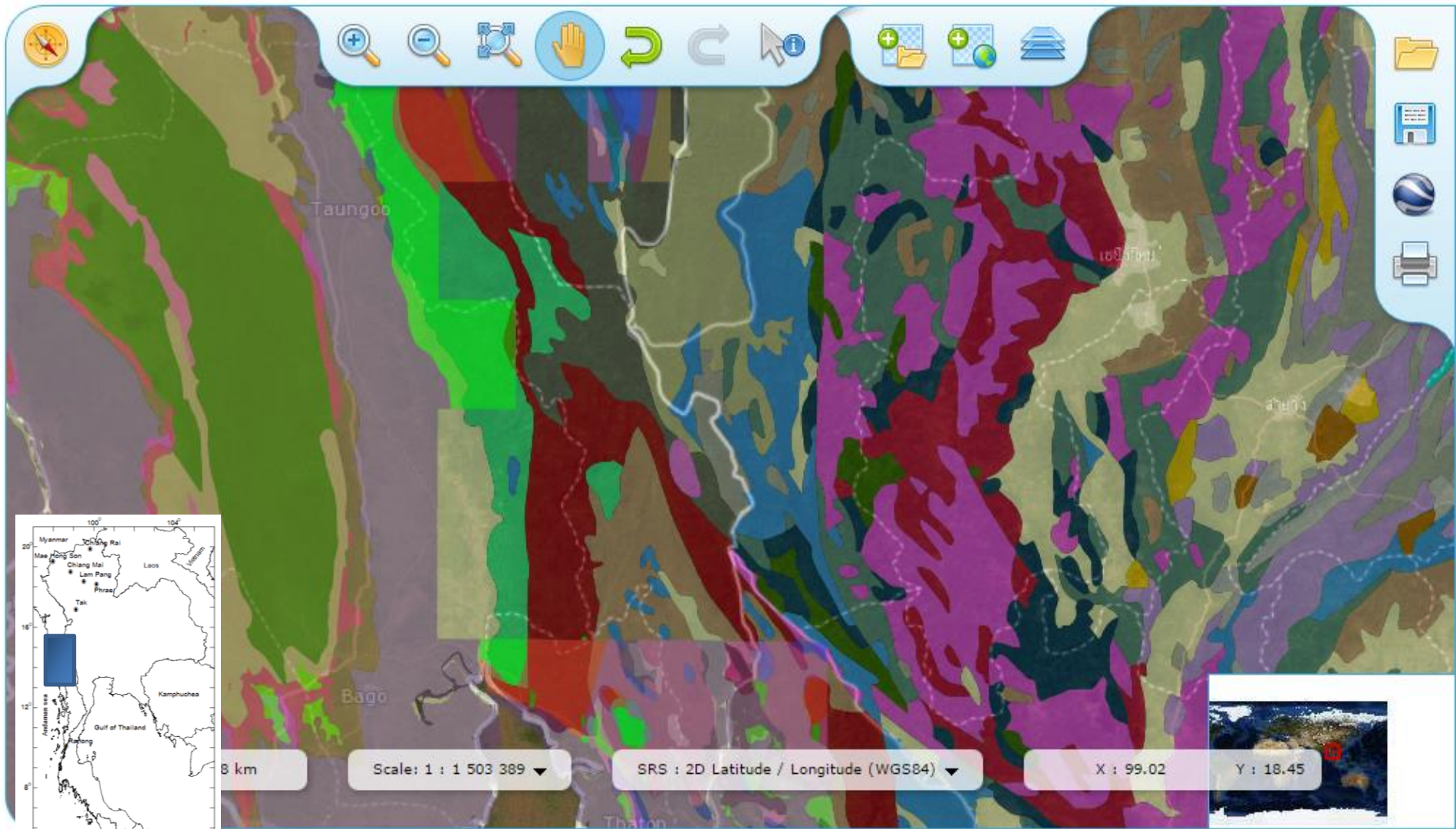
SRS : 2D Latitude / Longitude (WGS84)

X : 1



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8 km

Scale: 1 : 1 503 389

SRS : 2D Latitude / Longitude (WGS84)

X : 99.02

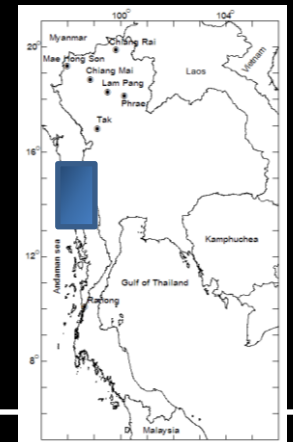
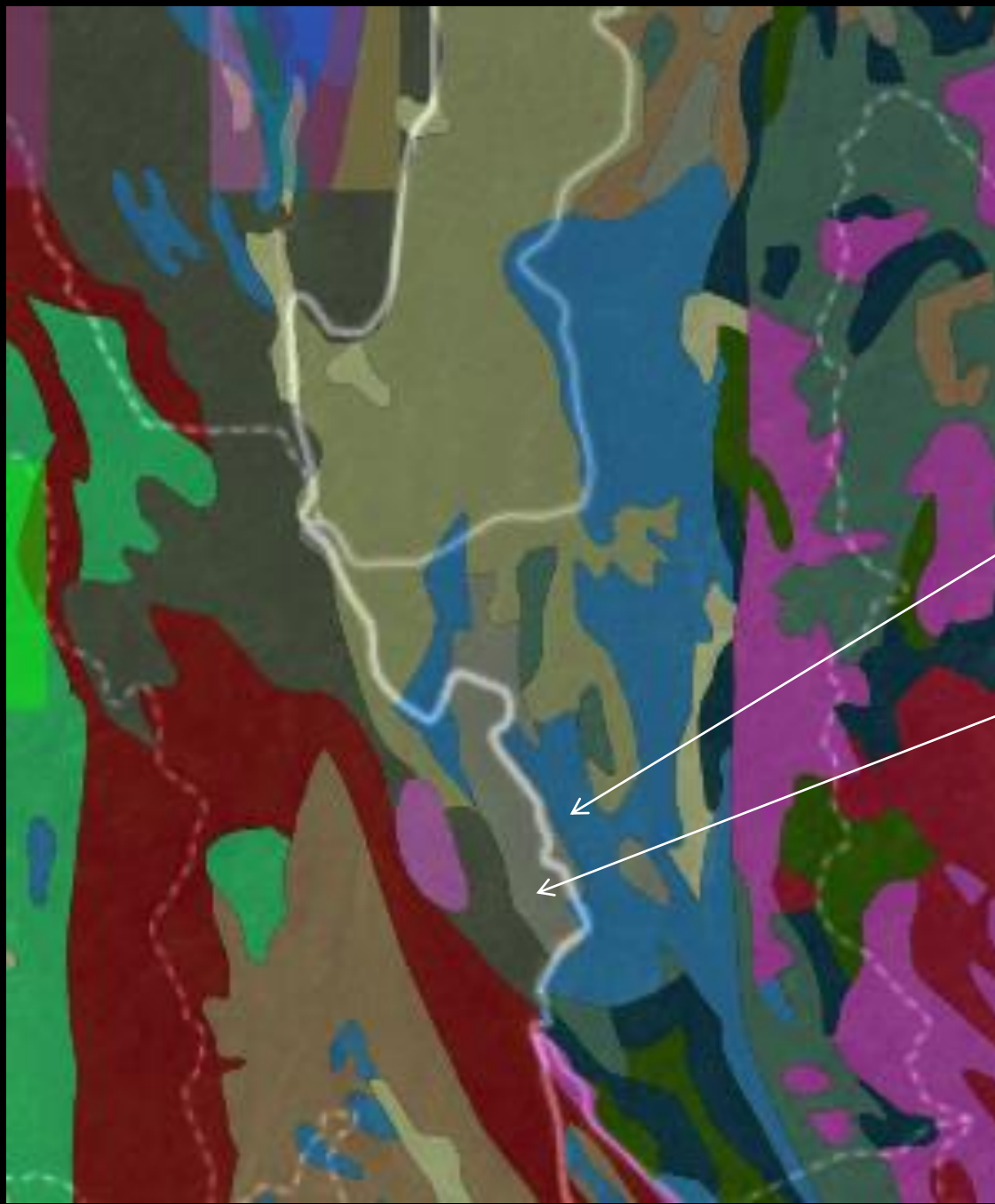


Y : 18.45

# examples of discontinuous geological boundaries along Thai-Myanmar border

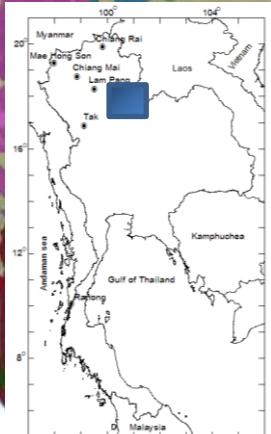
TrJ\_S: Sedimentary Rocks,  
Triassic to Jurassic

P\_S: Sedimentary  
Rocks, Permian





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3 km | Scale: 1 : 1 503 389 | SRS : 2D Latitude / Longitude (WGS84) | X : 99.92 | Y : 18.80



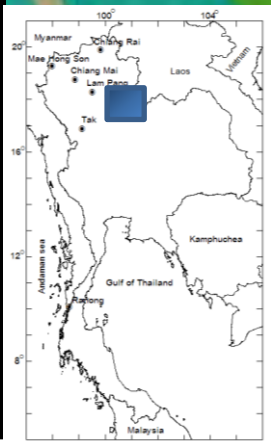
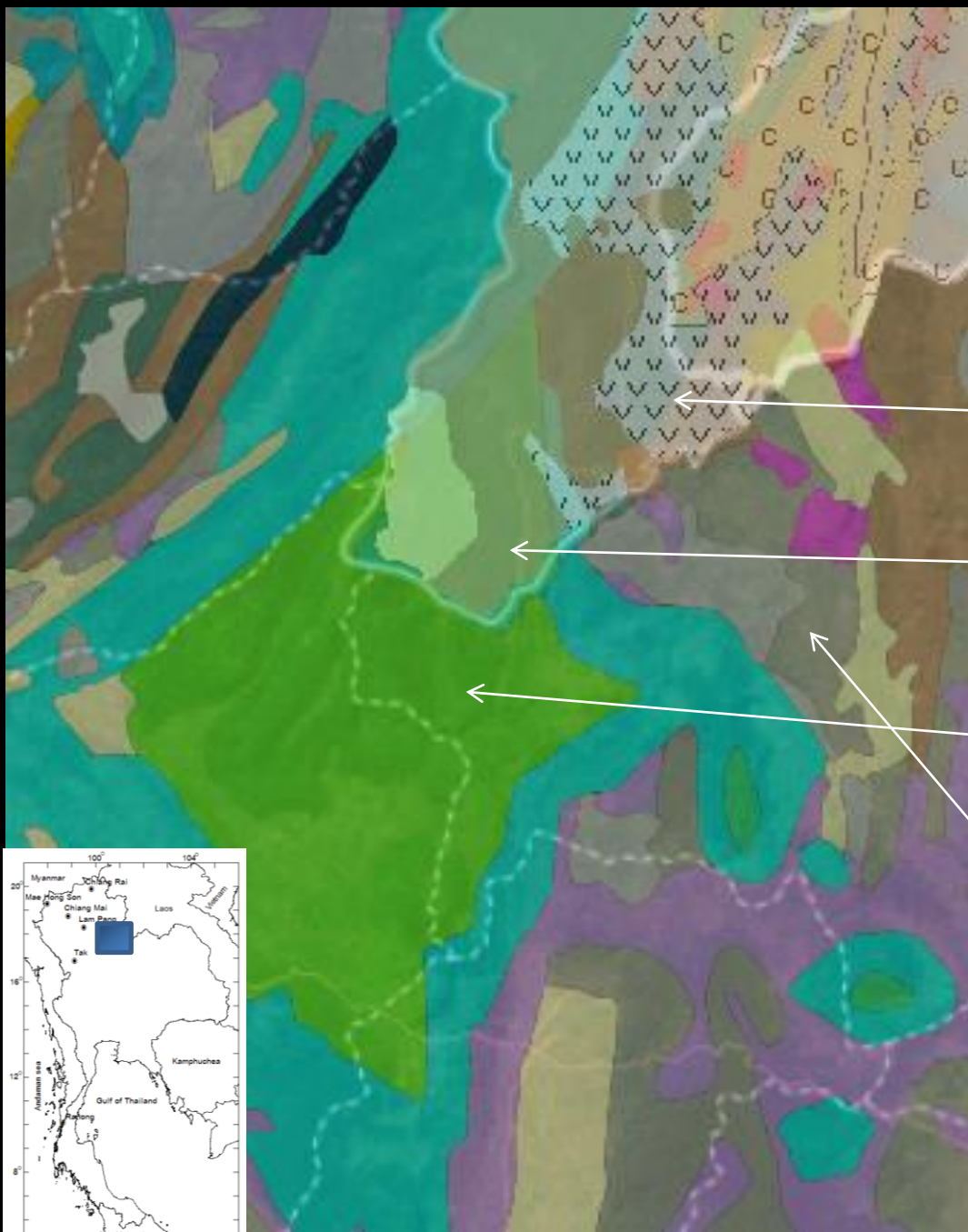
**examples of  
discontinuous  
geological  
boundaries along Thai-  
Laos PDR border**

C\_S: Sedimentary Rocks,  
Carboniferous

JK\_S: Sedimentary Rocks,  
Jurassic to Cretaceous

K\_S: Sedimentary Rocks,  
Cretaceous

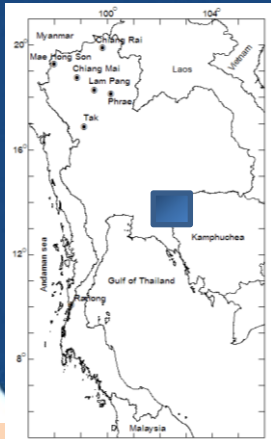
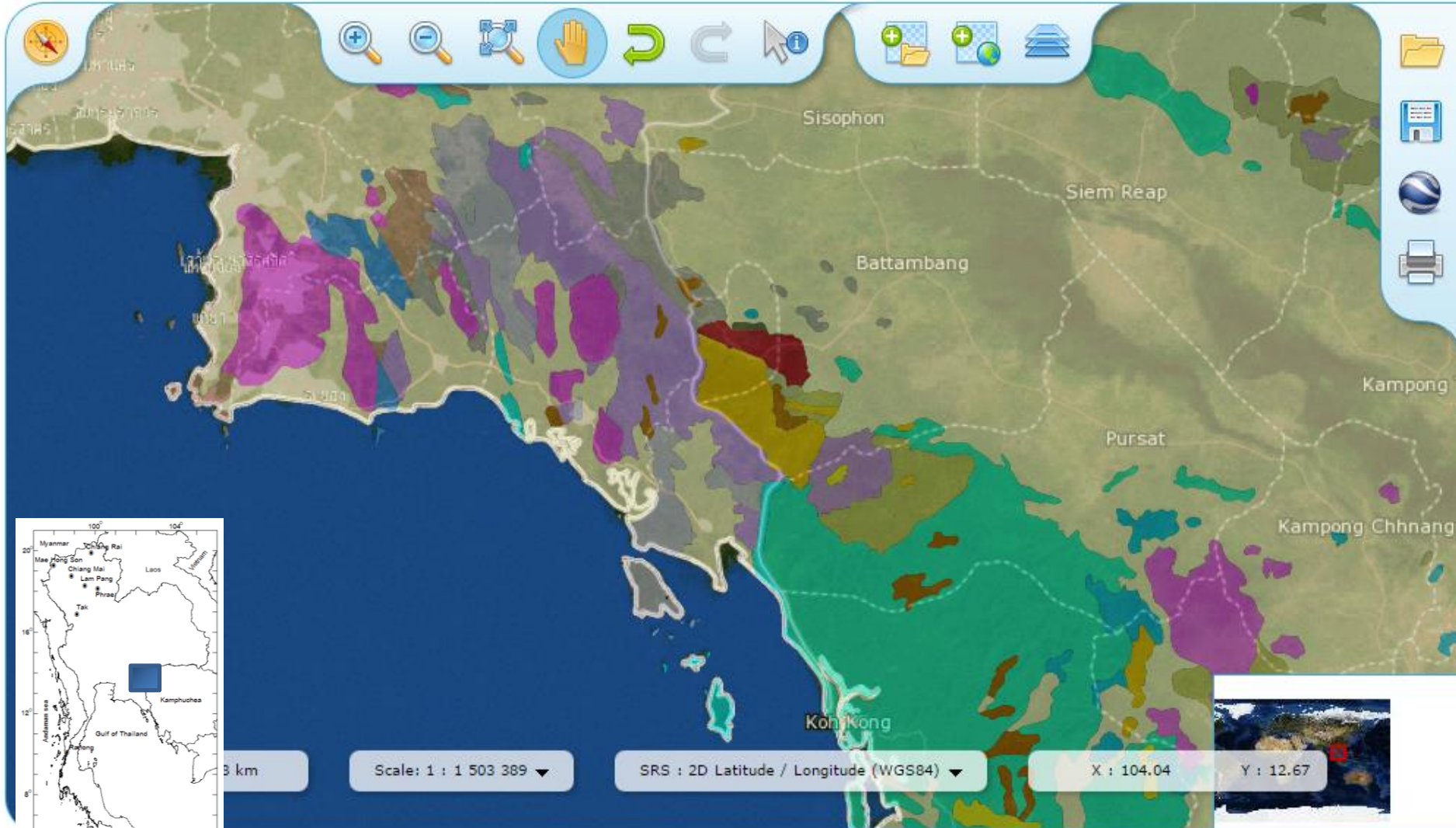
P\_S: Sedimentary Rocks,  
Permian



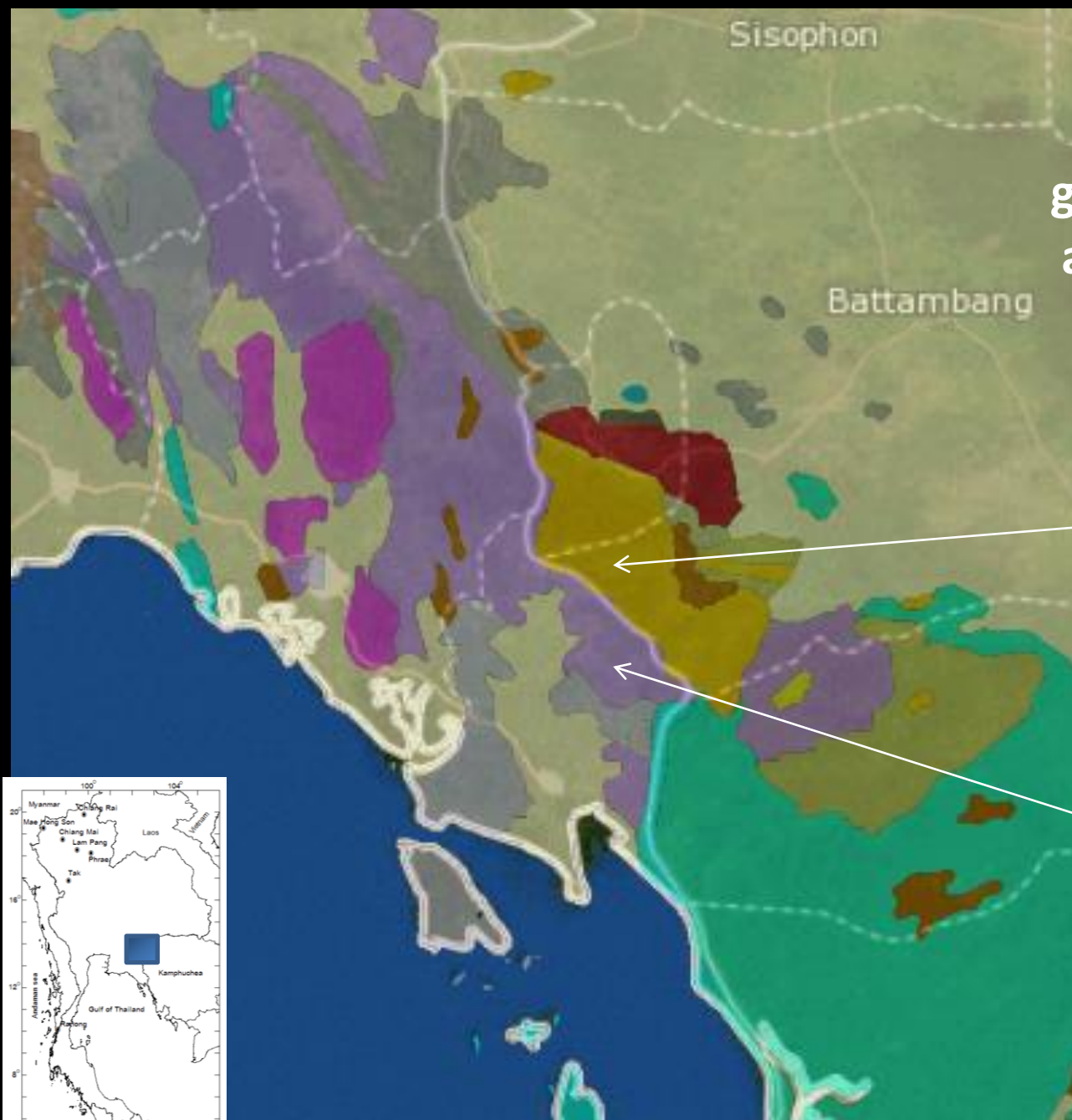


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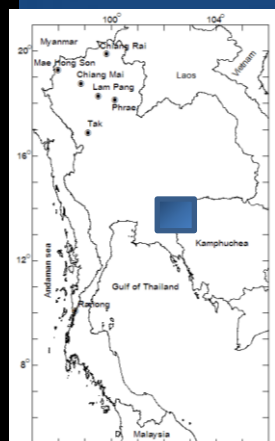
Scale: 1 : 1 503 389 | SRS : 2D Latitude / Longitude (WGS84) | X : 104.04 | Y : 12.67



**examples of  
discontinuous  
geological boundaries  
along Thai-cambodia  
border**

T\_S:  
Sedimentary  
Rocks, Tertiary

Tr\_S:  
Sedimentary  
Rocks, Triassic





ERA	PERIOD		ROCK UNITS										
			Langkawi/Tarutao			Perlis/Satun		Kedah/Songkhla		Perak/Yala		Suture zone	Kelantan/Narathiwat
CENOZOIC	QUATERNARY	Holocene	Port Weld Member/Au Son fm.	Matang Gelugor Member/Ao Chak fm.	Beruas Fm.	Gula Fm./Tak Bai fm.	Beruas Formation/Sg. Kolok formation	Beruas Formation/Sg. Kolok formation	Beruas Formation/Sg. Kolok formation	Beruas Formation/Sg. Kolok formation	Beruas Fm./Sg. Kolok fm.	Gula Fm./Tak Bai fm.	
		Pleistocene	Simpang Fm./Talo U Dang fm.			Simpang Fm./Waeng fm.		Tangga Formation/Waeng fm.		Nenering beds/Ai Yoe Boe Chang Gravel beds		Simpang Formation/Waeng fm.	
	NEOGENE							Arang/Sadao fm.					
MESOZOIC	CRETACEOUS							Saiong/Phun Phin Fm.					
	JURASSIC							Kayu Hitam fm./Lam Thap Fm.	Berapit Fm.	Tan Hain fm.	Panau Fm.		
	TRIASSIC				Chuping Fm.	Keteri member	Chaiburi Fm.	Semanggol Group/Lampang Group	Khlong Khon Fm.			Bu Yong fm.	Telong Fm./Ban Sa Fm.
						Panji member			Pedu fm./Khuan Chedi Fm.				
					Chondong member	Khao Rub Chang fm.	Bukit Merah fm./Nathawi Fm.						
PALAEOZOIC	PERMIAN	Jong fm.						Tawar fm.	Gerik Fm.	Tham Krachaeng fm.	Mangga Fm./Ka Lu Bi fm.	Taku formation/Buke Ta Fm.	
		Singa Fm./Kaeng Krachan Group			Lubok Sireh fm./Kaeng Krachan Group					Sri Paen fm.			
	CARBONIFEROUS	Rebak/Khuan Klang Fm.			Wang Kelian fm./Khuan Klang Fm.			Kubang Pasu/Yaha Fm.		Tiang formation			
	DEVONIAN	Langgun Fm.			Jentik/Pa Samed Fm.					Kroh/Betong Fm.			
	SILURIAN	Setul Group	Mempelam fm./Khuan Tang fm.										
			Tanjung Dendang fm./Wang Tong fm										
	ORDOVICIAN		Kaki Bukit fm./ Thung Song Group										
CAMBRIAN	Machinchang Group/Tarutao Group	Jemuruk fm./Talo Wow Fm.											
		Chinchin fm./Ao Mo Lae Fm.	Tengkorak member/Upper Sandstones										
			Temurun member/ Lower Sandstones										
		Anak Datal fm./Ao Tami Fm.											
		Hulor fm./Ao Makham Fm.											

Stratigraphic correlation chart of southern Thailand and northern Malaysia

ERA	PERIOD		Langkawi/Tarutao			Perlis/Satun	
	CENOZOIC	QUATERNARY	Holocene	Port Weld Member/Au Son fm.	Matang Gelugor Member/Ao Chak fm.	Beruas Fm.	Gula Fm./Tak Bai fm.
Pleistocene			Simpang Fm./Talo U Dang fm.			Simpang Fm./Waeng fm.	
	NEOGENE		Stratigraphic correlation chart of southern Thailand and northern Malaysia				
	CRETACEOUS						
	JURASSIC						
MESOZOIC	TRIASSIC						
	PERMIAN	Jong fm.			Chuping Fm.	Keteri member	Chaiburi Fm.
		Singa Fm./Kaeng Krachan Group				Panji member	Khao Rub Chang fm.
	CARBONIFEROUS	Rebak/Khuan Klang Fm.			Chondong member	Lubok Sireh fm./Kaeng Krachan Group	
		Wang Kelian fm./Khuan Klang Fm.			Wang Kelian fm./Khuan Klang Fm.		

## Plutonic rocks

ERA	PERIOD	ROCK UNITS						
		Langkawi/Tarotau/ Western Perlis/Satun	Eastern Perlis/Kedah/Songkhla		Upper Perak/Yala/Narathiwat		Kelantan/Narathiwat	
Transect		Western Province Granite (Malaysia)/ Central Belt (Thailand)					Eastern province granite (Malaysia)/Eastern Belt (Thailand)	
		Langkawi-Tarutao	Batu Putih- Satun	Gubir- Sadao	Pengkalan Hulu – Betong	Belum- Hala	Batu Melintang – Sg Kolok	
							Central Belt	Eastern belt
MESOZOIC	CRETACEOUS						Lawar granite/To Mo granite (Kgrlw/tm)	
	JURASSIC						Kenerong Granite/Ba La granite (Kgrkn/bl)	
	TRIASSIC	1. Langkawi granite 2. Adang granite	Bukit China/Khao Chin granite (Trgrbc/kn)	Koh Mai/ Pra Kob granite (Trgrkm/pk)	1. Rimba Telui/Si Nakhon granite (Trgrt/sn) 2. Bintang granite (Trgrbt)	1. Belum/Hala granite 2. Chantarat Granite (Trgrch)	Kemahang Granite/Sukhirin granite (Trgrkg/su)	Boundary Range Granite (Trgrbr/ty)

## Volcanic rocks

MESOZOIC	TRIASSIC	Igneous rock correlation chart of southern Thailand and northern Malaysia	Kumung Ophiolite Suite	Temangan Ignimbrite	Tanah Merah/Muno volcanic
PALAEZOIC	PERMIAN				

# ASEAN Highway Network Plan

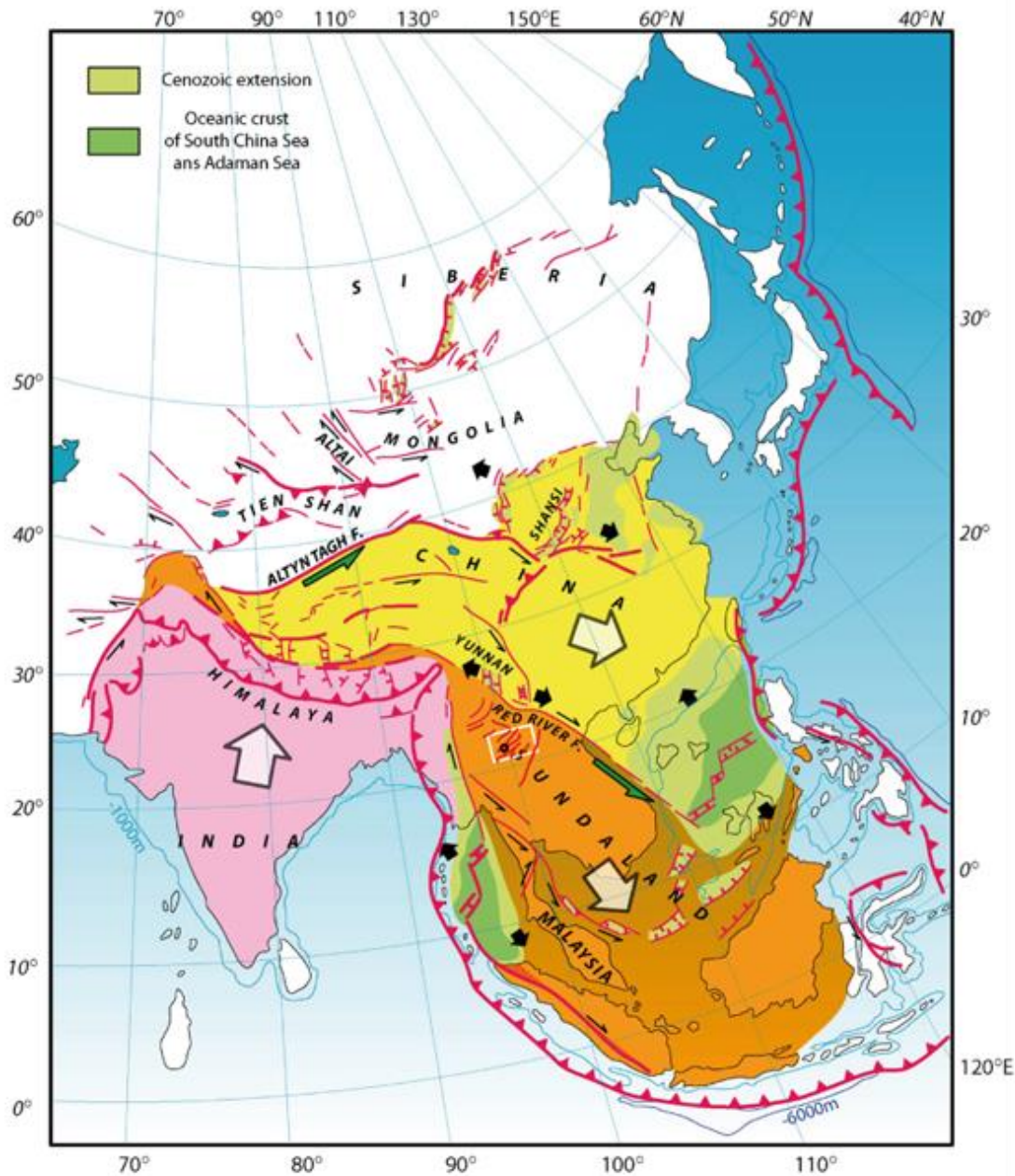


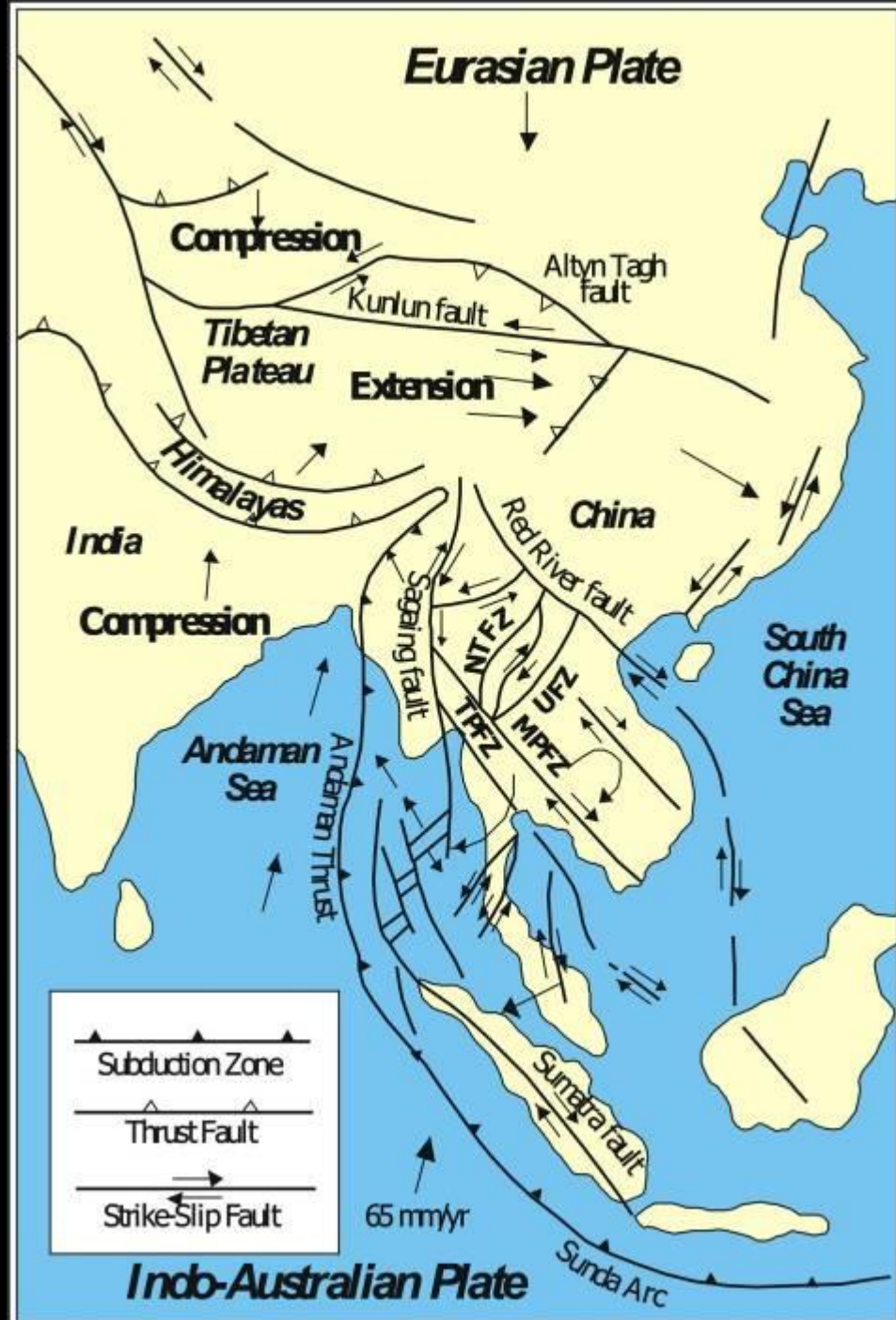
- Construction material
- Geologic hazardous area
- Relevant infrastructure construction

## 2. Geohazard

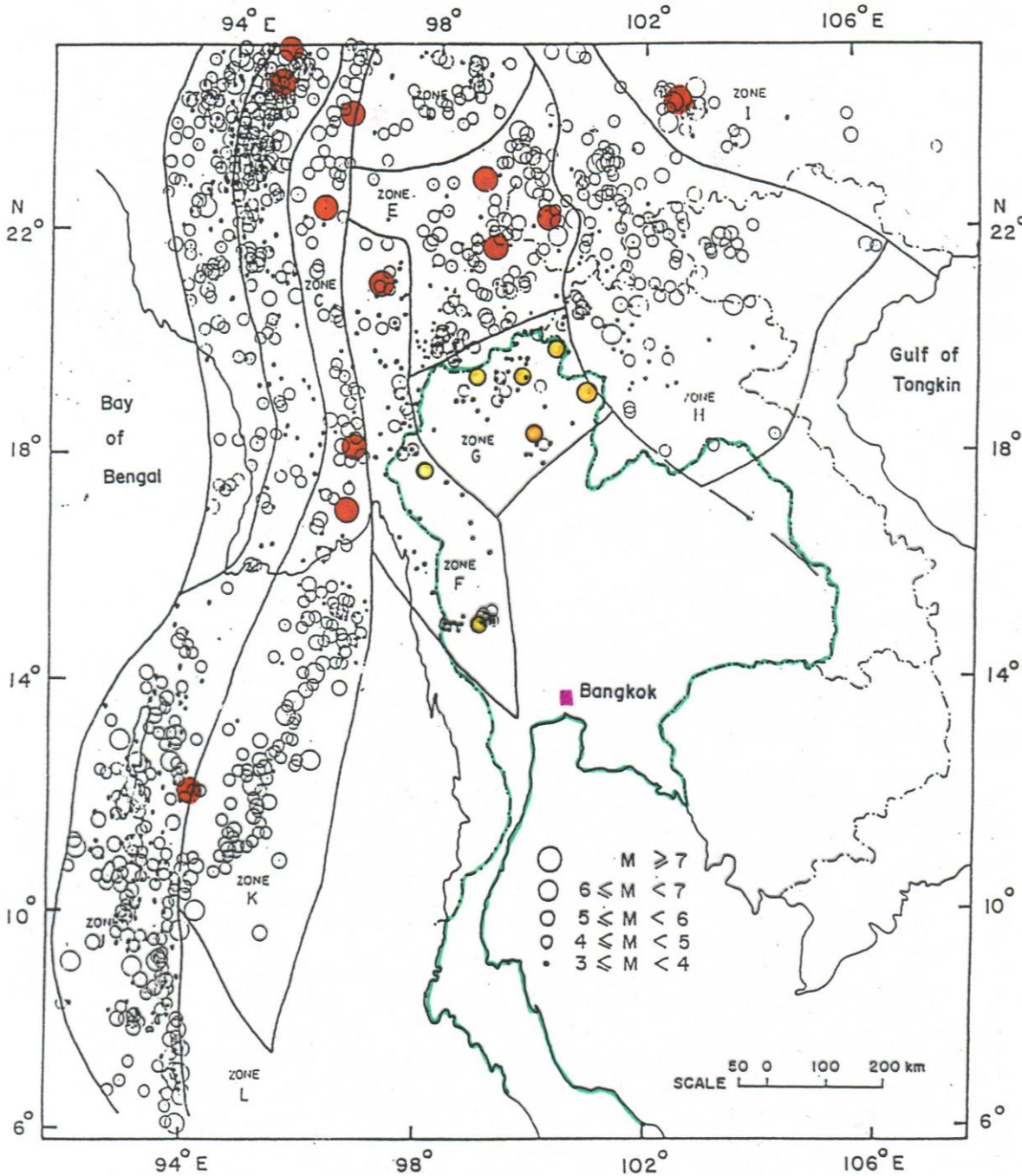
Example:

Tectonic Map of SE-Asia



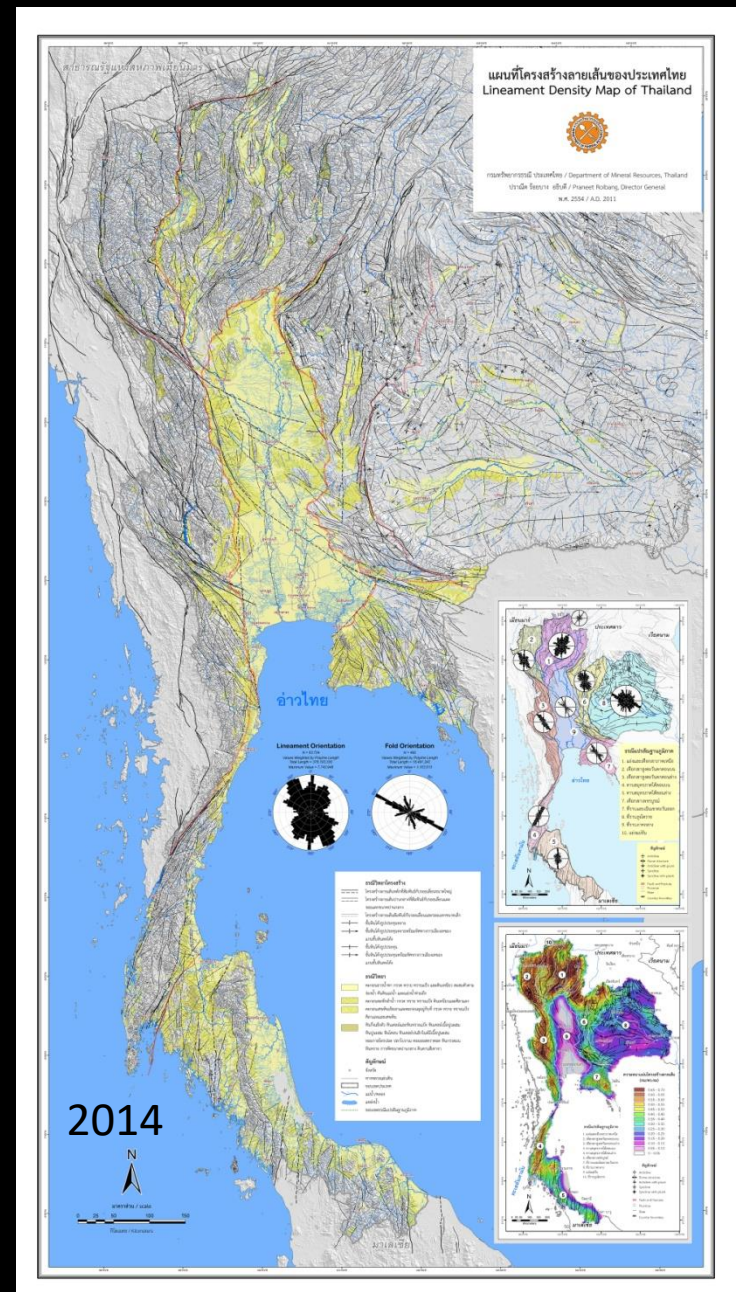
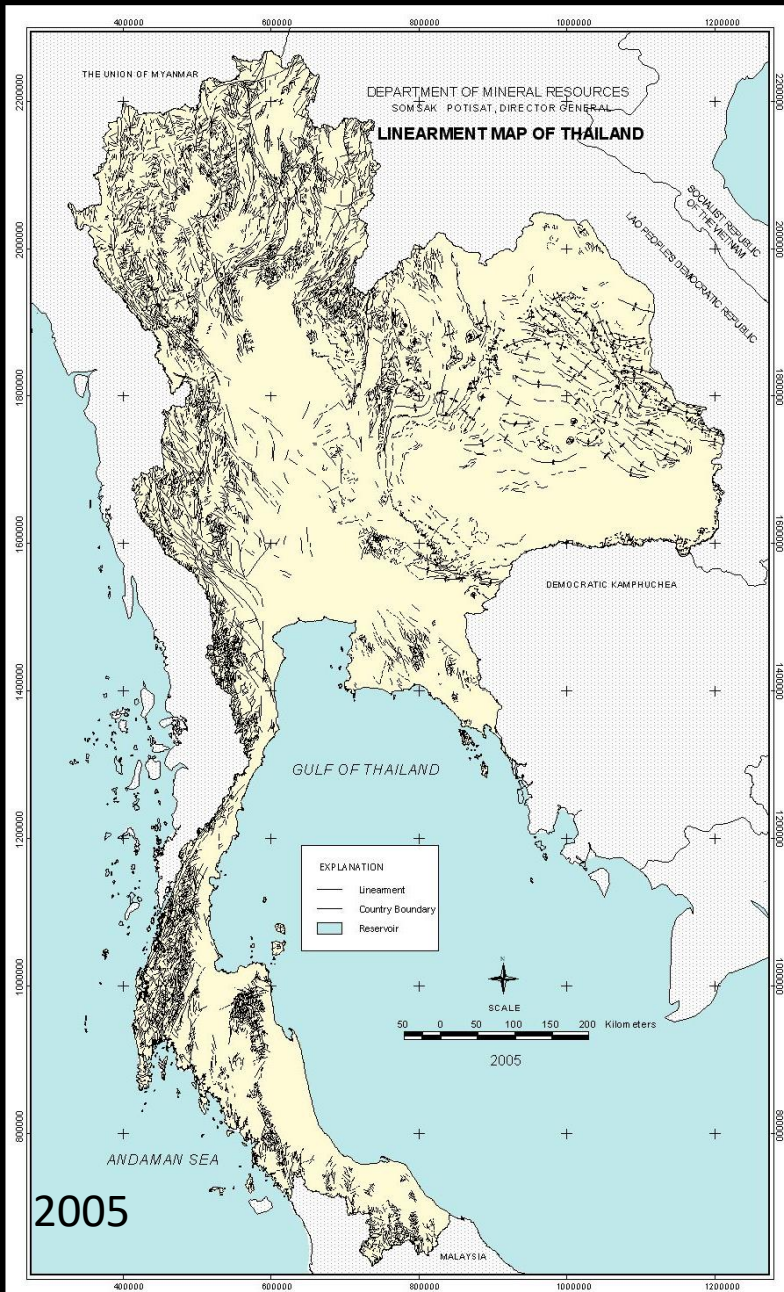


# Epicenter and Seismic Sources Zone

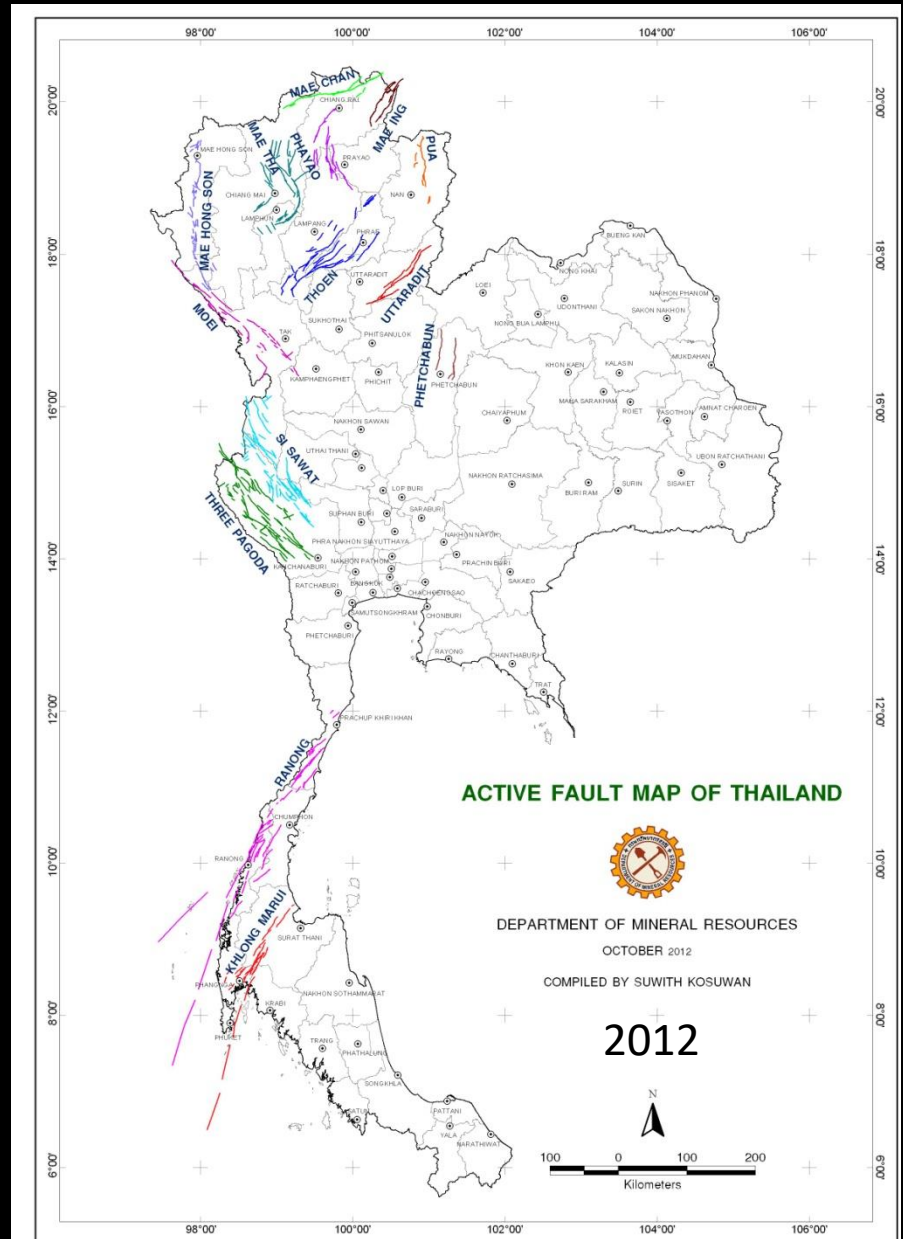
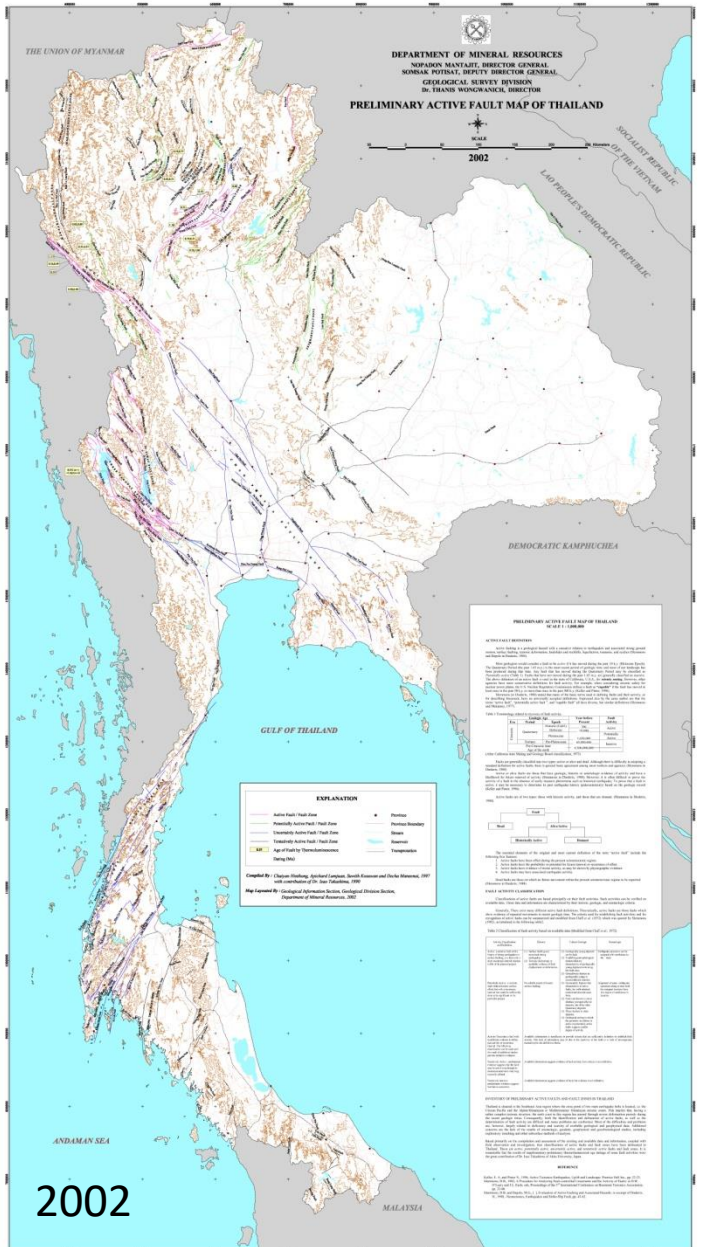


(1910-2000)

# Lineament Map of Thailand

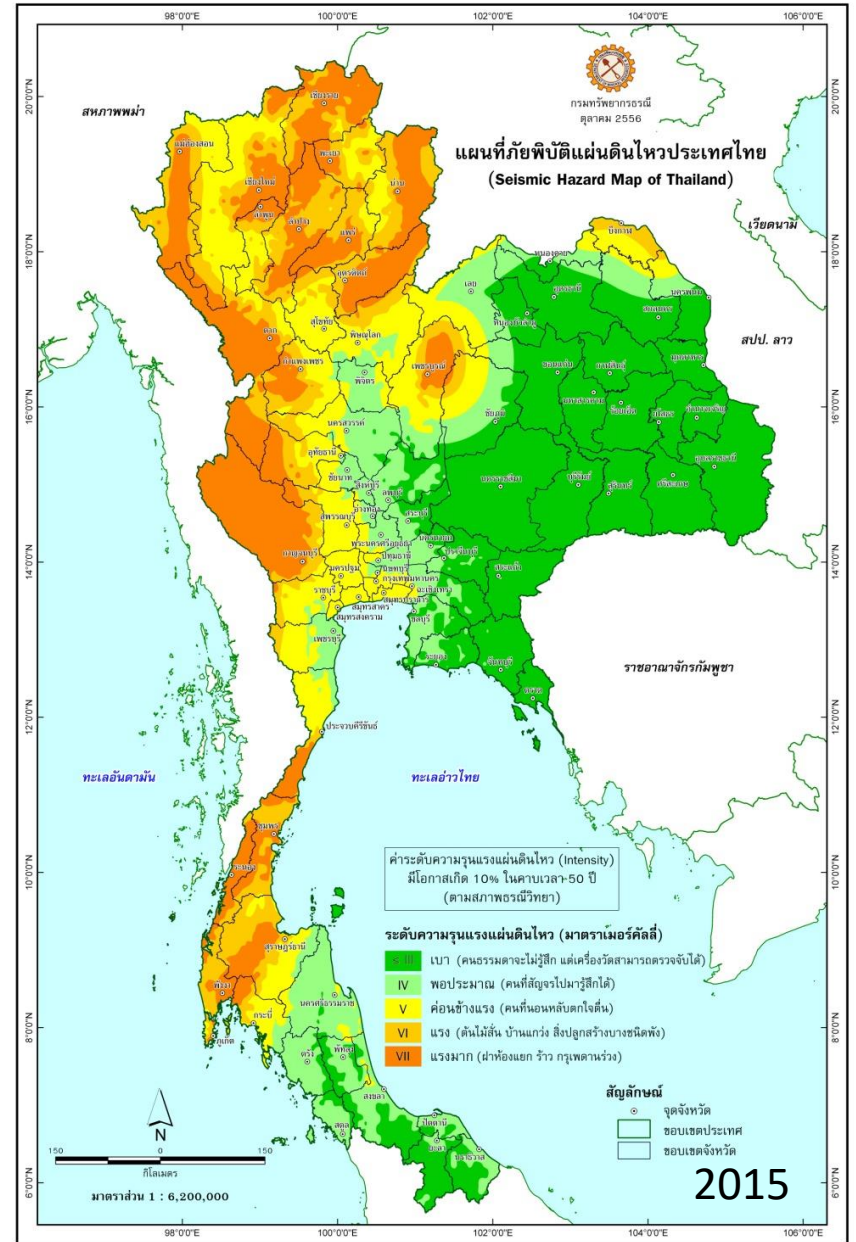
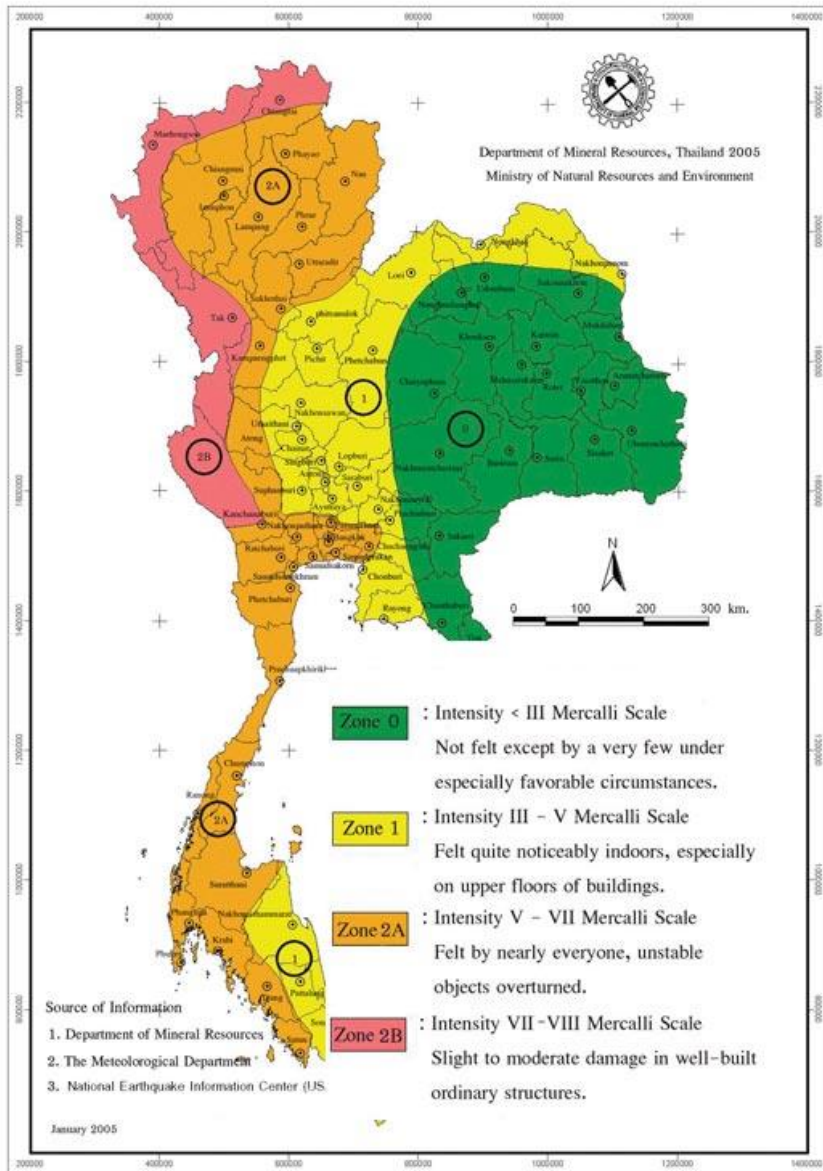


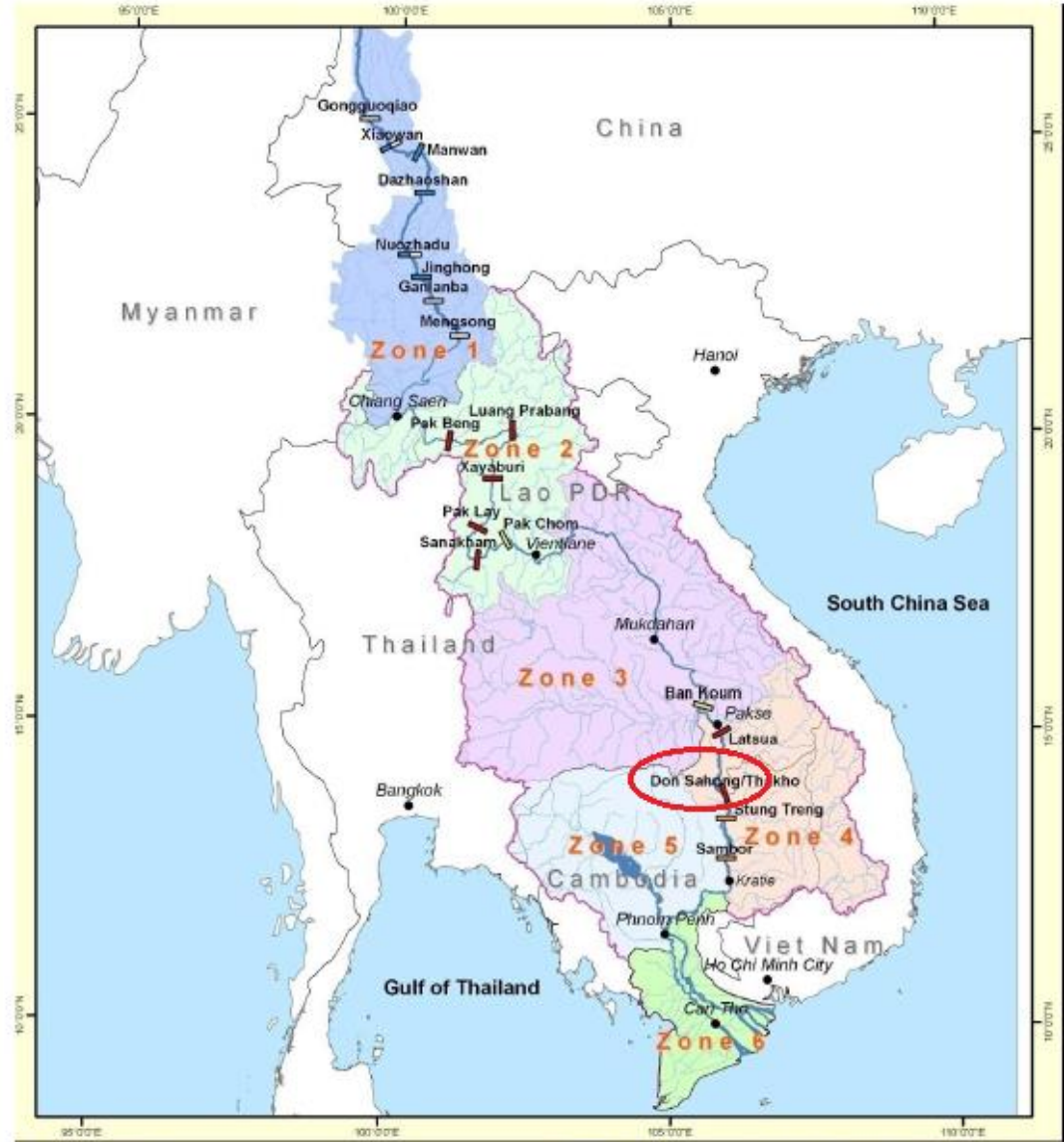
# Active Fault Map of Thailand



# Seismic Hazard Map of Thailand

Seismic Hazard Map of Thailand





**Key to features**

- National boundaries
- Province boundaries
- Major rivers
- Minor rivers
- LMB boundary
- Proposed dam (Lao PDR)
- Proposed dam (Lao PDR)
- Proposed dam (Cambodia)
- China dam (planned)
- China dam (under construction)
- China dam (operational)

**SEA of Mekong mainstream dams**

Groups of Mekong mainstream dams

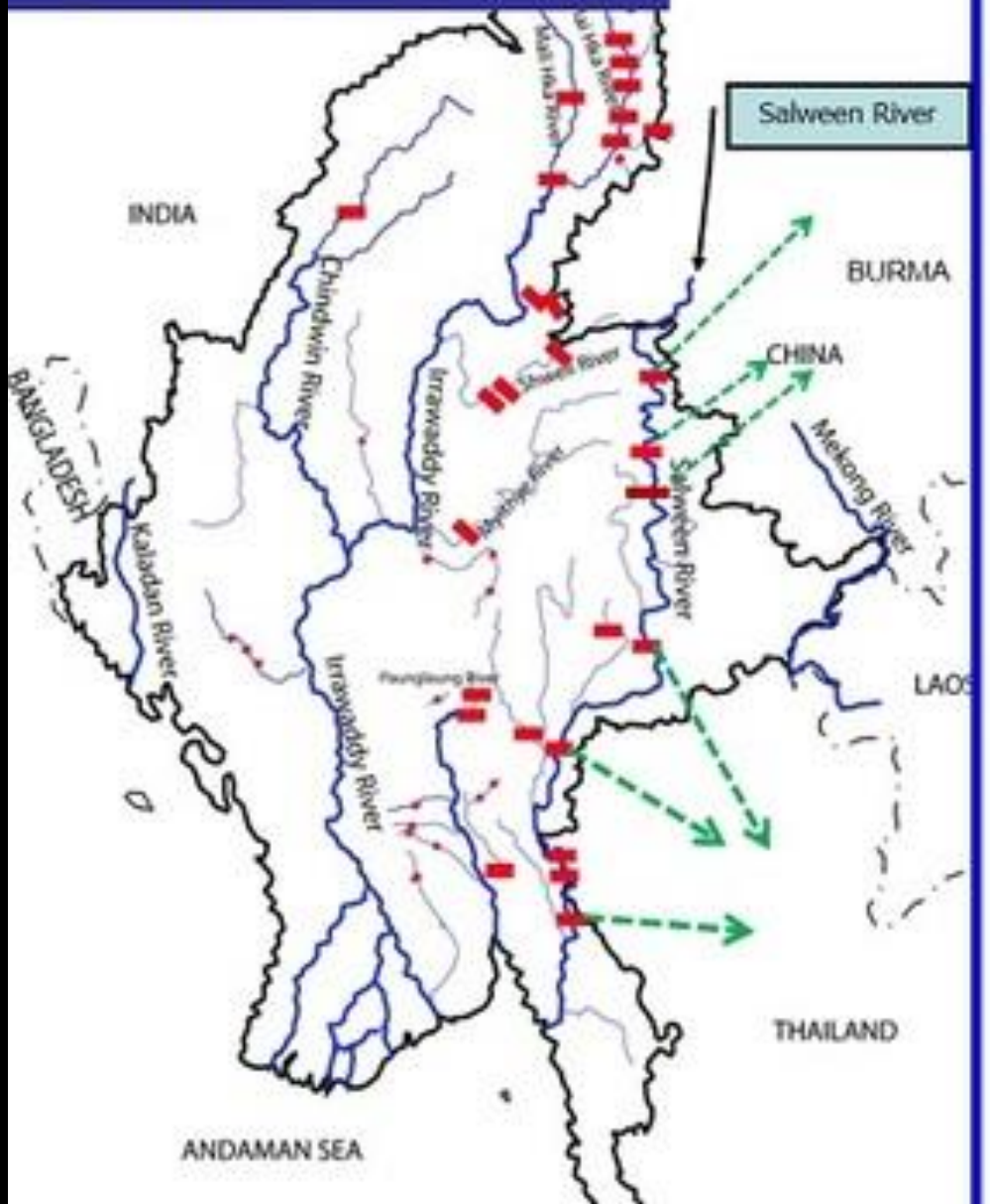
0 87.5 175 350 Kilometers

Mekong River Commission and ICEM:  
International Centre for Environmental Management

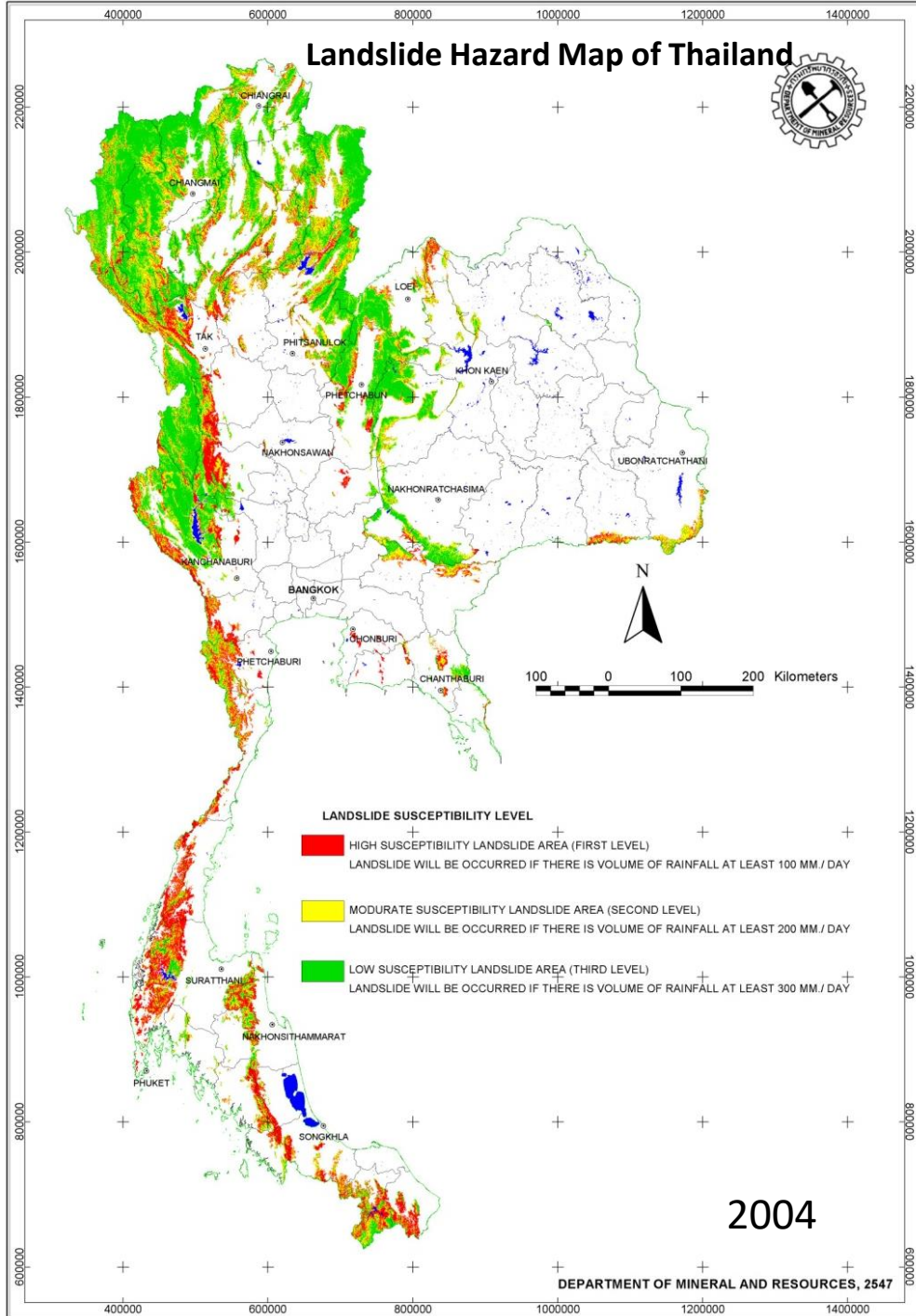
# Xayaburi Dam



# Salween Dams



# Landslide Hazard Map of Thailand



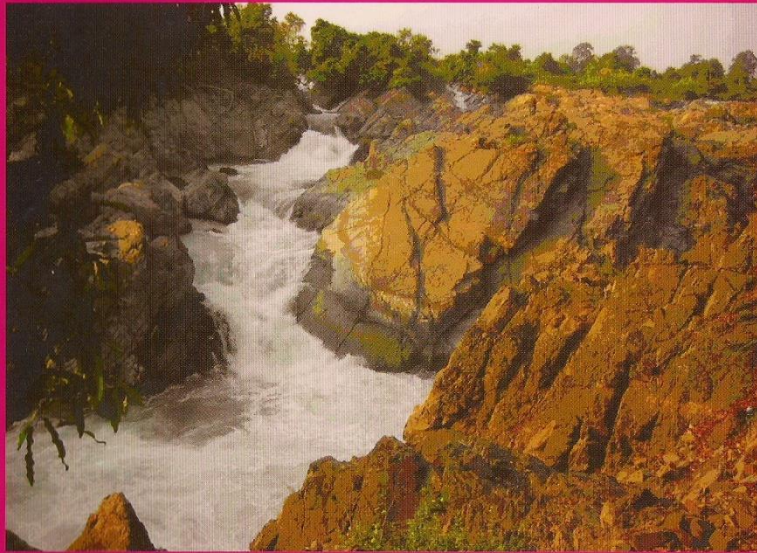
# 3. Geoconservation

# Geocomnservation



คู่มือท่องเที่ยวทางธรณีวิทยา  
สาธารณรัฐประชาธิปไตยประชาชนลาว

GUIDEBOOK For  
GEO-TOURISM in LAO PDR





โครงการความร่วมมือทางวิชาการด้านธรณีวิทยาและแหล่งแร่ ระหว่างกรมธรณีศาสตร์-ป่อแร่ แห่งสปป.ลาว  
และกรมทรัพยากรธรณีแห่งราชอาณาจักรไทย  
Technical Cooperation in Geology and Mineral Resources between Department of  
Geology-Mines, Lao PDR, and Department of Mineral Resources, The Kingdom of Thailand.

แหล่งท่องเที่ยวทางธรณีวิทยา สปป.ลาว  
*Lao PDR's Geological Tourist Places*



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# GEOINDO2015 Conference Excursion, November 25-28, 2015 (Khon Kaen – Kalasin – Ubonratchathani - Pakse - Paksong, Laos PDR)



## 4.Database management System (DBMS)

การนำเสนอข้อมูล แผนที่ธรณีวิทยา ข้อมูลธรณีพิบัติภัยแผ่นดินไหว  
ข้อมูล Geoconservation ผ่านเครือข่าย Internet

-จัดเก็บข้อมูล ในระ Database management System (DBMS)

-พัฒนาระบบสารสนเทศ เพื่อบริหารจัดการข้อมูลทางสารสนเทศ และ  
การจำแนกข้อมูลผ่านระบบเครือข่าย Internet

## 5.Other

- การแลกเปลี่ยนตัวอย่างแร่และหิน (เวียดนาม)
- การศึกษาด้านแร่พลอย (กัมพูชา)
- การศึกษาวิจัยอายุหินยุคพรีแคมเบรียน(เวียดนาม-ไทย)
- การหาความสัมพันธ์ของการเกิดแอ่งถ่านหินของ CLMTV (เมียนมาร์-ไทย-ลาว-เวียดนาม)